AMENDMENTS TO THE CLAIMS

Please cancel claims 19-20 and 25 without prejudice, add claims 30-38, and amend the claims as follows:

1-17. (Cancelled)

18. (Currently Amended) The method of claim 26, wherein there are at least 1,000 heterogenous nucleic acid sequences inserted into the viral expression vectors.

19-20. (Cancelled)

21. (Previously Presented) The method of claim 26, wherein the viral expression vectors are retroviral vectors.

22. (Previously Presented) The method of claim 21, wherein the retroviral vectors are lentiviral vectors.

23. (Currently Amended) The method of claim 26, wherein the effector sequences code for ~~cDNAs,~~ siRNAs~~, peptides or protein domains~~.

24. (Currently Amended) The method of claim [[26]] 23, wherein the effector sequences code for siRNAs which are 19 to 27 nucleotides in length.

25. (Cancelled)

26. (Currently Amended) A method for making a packaged viral effector library, comprising:

cloning a defined set of nucleic acid sequences into viral expression vectors to produce a library of effector constructs, wherein the defined set of nucleic acid

sequences comprises at least 100 different effector sequences and is made by a ~~method~~ process comprising:

synthesizing a set of nucleic acid sequences on a surface of a microarray, wherein each nucleic acid sequence has a specific sequence, has a length of at least 70 nucleotides, and is synthesized in a specific location of ~~said~~ the surface;

detaching the set of nucleic acid sequences from the microarray; and

amplifying the detached set of nucleic acid sequences by polymerase chain reaction, thereby generating the defined set of nucleic acid sequences; and

packaging the library of effector constructs into viral particles to produce a viral effector library.

27. (Currently Amended) A method for making a ~~viral effector~~ library of effector constructs, comprising:

synthesizing a set of at least 100 different effector nucleic acid sequences on a surface of a microarray, wherein each nucleic acid sequence has a specific sequence, has a length of at least 70 nucleotides, and is synthesized in a specific location of ~~said~~ the surface;

detaching the set of nucleic acid sequences from the microarray;

amplifying the detached set of nucleic acid sequences by polymerase chain reaction, thereby generating a defined set of nucleic acid sequences; and

cloning the defined set of nucleic acid sequences into viral expression vectors to produce a library of effector constructs.

28. (Previously Presented) The method claim 27, further comprising packaging the library of effector constructs into viral particles to produce a viral effector library.

29. (Cancelled)

30. (New) The method of claim 26, wherein the effector sequence comprises complementary sense and antisense sequences, each of length between 19 and 27 nucleotides and separated by a loop sequence of length between 4 to 18 nucleotides.

31. (New) The method of claim 30, wherein at least 19 nucleotides of the antisense sequence is complementary to at least one specific mammalian mRNA.

32. (New) The method of claim 26, wherein the viral expression vectors are selected from the group consisting of Moloney murine leukemia virus (MMLV), murine stem cell virus (MSCV), mouse mammary tumor virus (MMTV), feline immunodeficiency virus (FIV), human immunodeficiency virus (HIV), adeno-associated virus (AAV), and adenovirus.

33. (New) The method of claim 26, wherein the library of viral effector constructs comprises an RNA polymerase III promoter and an effector sequence operably linked to a region of the RNA polymerase III promoter and a termination signal operably linked to the effector sequence.

34. (New) The method of claim 33, wherein the effector sequence is a self-complementary sequence comprising a sense region, an antisense region, and a loop region, wherein the sense and antisense regions are each between 19 to 29 nucleotides and the loop region between 4 to 18 nucleotides, and the antisense region comprises a complementary sequence of at least 19 nucleotides to at least one specific mammalian mRNA sequence.

35. (New) The method of claim 34, further comprising expressing siRNA effectors in mammalian cells to knockdown activity of specific mRNAs by:

transducing the packaged viral effector library into mammalian cells;

transcribing from the RNA polymerase III promoter within each effector construct of a specific, self-complementary RNA molecule comprising a sense region, an antisense region, and a loop region, wherein the sense and antisense regions are each between 19 to 29 nucleotides and the loop region is between 4 to 18 nucleotides;

processing of the self-complementary RNA molecule into a double-stranded siRNA molecule comprising the sense and antisense strands that are between 21 to 23 nucleotides; and

knocking down the activity of the specific mRNA by interacting the antisense strand with the complementary sequence of at least one specific mammalian mRNA.

36. (New) A method for making a packaged viral effector library, comprising:

cloning a defined set of nucleic acid sequences comprising at least 100 different effector sequences into viral expression vectors to produce a library of effector constructs, wherein each effector sequence comprises a sense region, an antisense region, and a loop region, and the sense region is between 19 to 29 nucleotides, the loop region is between 4 to 18 nucleotides, and the antisense region is between 19 to 29 nucleotides, comprises at least 19 nucleotides of a complementary sequence to at least one specific mRNA sequence of mammalian origin, and is made by a process comprising:

synthesizing a set of nucleic acid sequences on a surface of a microarray, wherein each nucleic acid sequence is a single-stranded deoxyribonucleotide with a specific sequence of at least 70 nucleotides, and is synthesized at a specific location of the surface;

detaching the set of nucleic acid sequences from the microarray;

amplifying the detached set of nucleic acid sequences by polymerase chain reaction, thereby generating the defined set of nucleic acid sequences; and

packaging the library of effector constructs into viral particles to produce a viral effector library.

37. (New) A method for making a viral effector library, comprising:

synthesizing a set of at least 100 different effector nucleic acid sequences on a surface of a microarray, wherein each nucleic acid sequence has a specific sequence, has a length of at least 70 nucleotides, and comprises a sense region, an antisense region, and a loop region, the sense region is between 19 to 29 nucleotides, the loop region is between 4 to 18 nucleotides, and the antisense region is between 19 to 29

nucleotides, comprises at least 19 nucleotides of a complementary sequence to at least one specific mRNA sequence of mammalian origin, and is synthesized at a specific location of the surface;

detaching the set of nucleic acid sequences from the microarray;

amplifying the detached set of nucleic acid sequences by polymerase chain reaction, thereby generating a defined set of nucleic acid sequences; and

cloning the defined set of nucleic acid sequences into viral expression vectors to produce a library of effector constructs.

38. (New) The method claim 37, further comprising packaging the library of effector constructs into viral particles to produce a viral effector library.